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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,358	09/25/2003	David Callum Johnson	S1011/20159	7092

3000 7590 01/16/2007  
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PHILADELPHIA, PA 19103-2212

EXAMINER
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TORRES, MELANIE

ART UNIT	PAPER NUMBER
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3683

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/671,358

Applicant(s)

JOHNSON, DAVID CALLUM

Examiner

Melanie Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,5-9 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Purdy et al. in view of Olcott or Johnson (EP 1260729).

Purdy et al. teach all the limitations of the claimed invention except wherein the core layer is a C-C composite article impregnated with refractory carbide. Olcott and Johnson teach a C-C composite article impregnated with refractory carbide. It would have been obvious to one of ordinary skill in the art at the time the invention was made to impregnate a C-C wear layer with refractory carbide to improve the adhesion characteristics of wear layers and to provide improved heat sink capabilities for use in making friction materials. (See Johnson, Abstract and Olcott, Column 2, lines 45-66)

3. Claims 1, 2, 5-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krenkel et al (935) or Bauer et al (040) or Domergue et al (475) or Madin (164) in view of GB 2298687 to Purdy (022) or Dietrich et al (525) and further in view of Olcott and Johnson (EP 1260729).

It would have been obvious at the time the invention was made to select the density of the core to wear layer in each of the principal references to be with the core

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density 1.85 gcm-3 to 2.95 gcm-3 and the wear layer(s) 1.85 gcm-3 or lower as taught by each of the secondary references to reduce weight and costs to compensate for the squeezed profit margins in businesses today by routine trial and error which leads to optimum ranges without sacrificing the brakes ability to operate within acceptable wear frames and weight and heat concerns. It would have been obvious at the time the invention was made to modify the admitted prior art to select the core layer to have a greater density than the wear layer with the specific ranger taught by Purdy or Dietrich et al in order to reduce costs and it would have been obvious to the artisan in the art to manipulate the ratios of density, lengths, sizes, etc., as taught by the secondary references and, in the alternative, to select the specific ranges through routine trial and error during routine experimentation to select the optimum ranges to arrive at the best and most cost effective solution to promote strength, good wear capabilities, good heat reduction and weight concerns. Further, Olcott and Johnson teach a C-C composite article impregnated with a refractory carbide. It would have been obvious to one of ordinary skill in the art at the time the invention was made to impregnate a C-C wear layer with refractory carbide to improve the adhesion characteristics of wear layers and to provided improved heat sink capabilities for use in making friction materials. (Column 2, lines 45-66)

### ***Response to Arguments***

4. Applicant's arguments filed October 24, 2006 have been fully considered but they are not persuasive.

The rejection relying upon Fennel et al. has been withdrawn.

The examiner disagrees with Applicants argument that Purdy et al. does not teach a wear layer attached to a core layer wherein the wear layer has a density less than the core layer. This is not only illustrated in figures 8-11 but also discussed in Column 8 of the reference.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant appears to repeatedly ignore the combination above and attacks the teaching references for not disclosing the claimed invention as a whole. Such a disclosure is not required in a rejection under 35 U.S.C. 103(a). The teaching references provide clear motivations for the combinations as cited above. Specifically, Applicant points to the lack of a teaching in Johnson for a C-C material with layers of differing densities. Johnson is not relied upon by the examiner for such a teaching. Johnson clearly teaches in the Abstract the benefits of refractory carbides in frictional braking elements for their wear resistance. Similarly, Olcott is not relied upon as a teaching wherein refractory carbides are known to provide frictional resistance in braking elements, oxidation resistance, strength and heat sink properties as discussed in Column 2, lines 45-65.

### ***Conclusion***

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5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

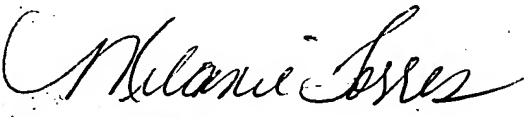
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Torres whose telephone number is (571)272-7127. The examiner can normally be reached on Monday, 6:00 AM - 4:30 PM, Tuesday, 6:00 - 12:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan can be reached on (571)272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MT  
January 8, 2007

  
Melanie Torres  
Primary Examiner  
1-8-07